

FLORIDA HIGHWAYS



Vol. V

JUNE, 1928

No. 6

Published by the State Road Department

\$1.00 Per Year

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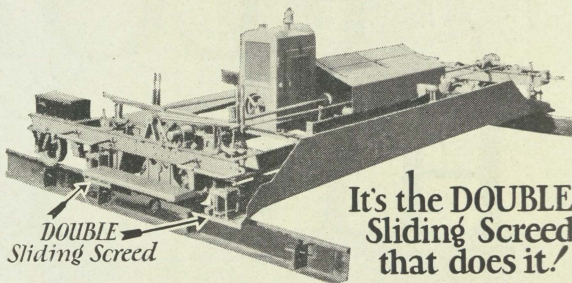
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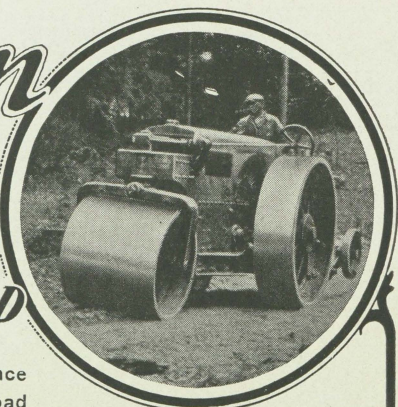
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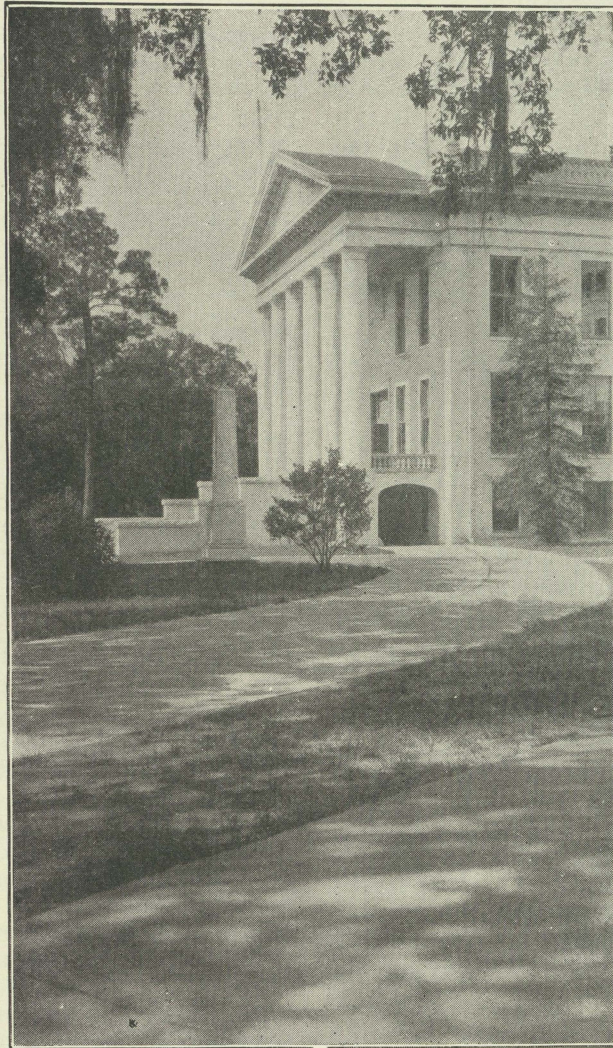
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Vol. V
No. 6



H I G H W A Y S

JUNE,
1928

How Shall the "Lowest and Best" Bidder for Public Works Be Selected?

Excerpts from a Memorandum Submitted to the Comptroller General of the United States by the Associated General Contractors of America

PUBLIC construction during recent years has been disrupted by thousands of defaulted contracts, which were awarded to individuals or companies incapable of carrying out their commitments. Public construction has become not only the experimenting ground for inexperienced concerns, but also the hunting ground of irresponsible ones, who have not the ability to gain a foothold in private construction or who deliberately set out to prey upon public bodies. In 1925 the situation became so acute that practically all the professions and industries of construction inaugurated a joint effort to find ways and means of relief.

The construction industry contains a great number of irresponsible concerns that move from one place to another, securing contracts solely because they bid below cost and are able to secure a bond. Their method of procedure is to collect a few progress payments, neglect to pay their bills and then default, leaving the public body and the surety company to stand the loss. Later they reappear in a new locality, usually under a new name, and begin again. Because of com-

petitive conditions in the surety field, these irresponsible concerns are able to purchase a bond, which unfortunately clothes them with the garments of responsibility.

Relative to this matter, W. R. Neel, State Highway Engineer of Georgia, speaking before the American Association of State Highway Officials, stated the following:

"For many years there has been a prevailing tendency among the awarding officials in all branches of government, to assume that anyone supplied with a surety bond was a responsible bidder. Such an assumption was never really justified, but at the present time it is wholly without foundation. The sureties themselves have told us that the corporate bond was never supposed to represent responsibility, but merely that the work would by some means be completed. This conception of the bond is quite different from that held by legislators, commissioners and the public. It would doubtless be to the interest of everyone concerned, if they were given correct information.

"Three points in particular should be emphasized: first, that a bidder's ability to furnish a corporate bond is no assurance that he is responsible; second, that the bond does not protect the state against all of the losses incurred by default; third, that for the type of protection given, the premium cost is unduly high."

The problem of defaulted contracts goes far beyond those difficulties which are caused by inherently irresponsible bidders or by those who are simply dishonest. Many defaults and losses to the government are caused by perfectly honest concerns which are reliable and responsible as long as they undertake work within their abilities, but which become irresponsible when they suddenly attempt to double or treble the magnitude of their operations.

The Associated General Contractors of America, Inc., is in a position to speak without bias in this matter, for the reason that its membership contains both large and small concerns. They vary from those who do \$60,000,000 worth of work in a year, on down to those who do but \$20,000. In fact, the bulk of the Association's income is derived from dues of medium-sized contractors, yet they are all in accord with the principles set forth.

It is particularly important to note that the term "responsibility" has a rational meaning only as applied with respect to a specific project, and the volume of work that the specific contractor has on hand. When a given company, capable of handling so many jobs of a certain size in a year, suddenly doubles or trebles its volume of work or bids upon projects two or three times larger than it has ever handled before, it is likely to become an unsafe company for any public body to deal with. It will certainly be an unsafe one unless it has acquired additional capital and brought properly experienced personnel into its organization.

This condition indicates what a difficult proposition the administrative official is up against when awarding contracts. One surety company alone, a short time back, had 1,790 defaults among contractors that it had bonded. These men left a string of poor construction and losses behind them.

A Supreme Court on Irresponsible Contractors

The loss and injury resulting to the government is not only recognized by administrative officials, but has been taken into account by legislators and the courts. The Supreme Court of Pennsylvania (*Commonwealth vs. Mitchell*, 82 Pa. St. 343) relative to a rejected bidder, stated:

"In a contract such as the one in controversy, the work must be promptly, faithfully and well done. It must or ought to be conscientious work. To do such work requires prompt, skillful and faithful men. A dishonest contractor may impose upon the city, in spite of the utmost caution of the superintending engineer, a piece of construction apparently good and even capable of bearing its duty for a time, which in the end may prove to be a total failure and worse than useless. Granted that from such a contractor pecuniary damages may be recovered by an action of law. This is at best but a last resort that often produces more vexation than profit, a mere botch upon a bad job, and exceedingly meager compensation at best for the delay and incalculable damage resulting to a great city from the want of a competent supply of water."

The thought expressed by this court has been collaborated by many other State Supreme Courts. It

is well known throughout the commercial world, and generally by awarding officers, that awards made to individuals without experience or organization merely because they can supply surety bond, is directly contrary to public interest. With respect to this matter, the courts have gone even further. They have indicated that any awarding official who awards a contract to a low bidder, believing him incapable of carrying out the contract, is derelict in his duty. Once this matter of judgment has been honestly exercised, the courts will not go behind the awarding officer's decision. This principle is so well established that it has become a general rule of law. The rule as enunciated by the courts (38 L. R. A. (N. S.) 655 note) is as follows:

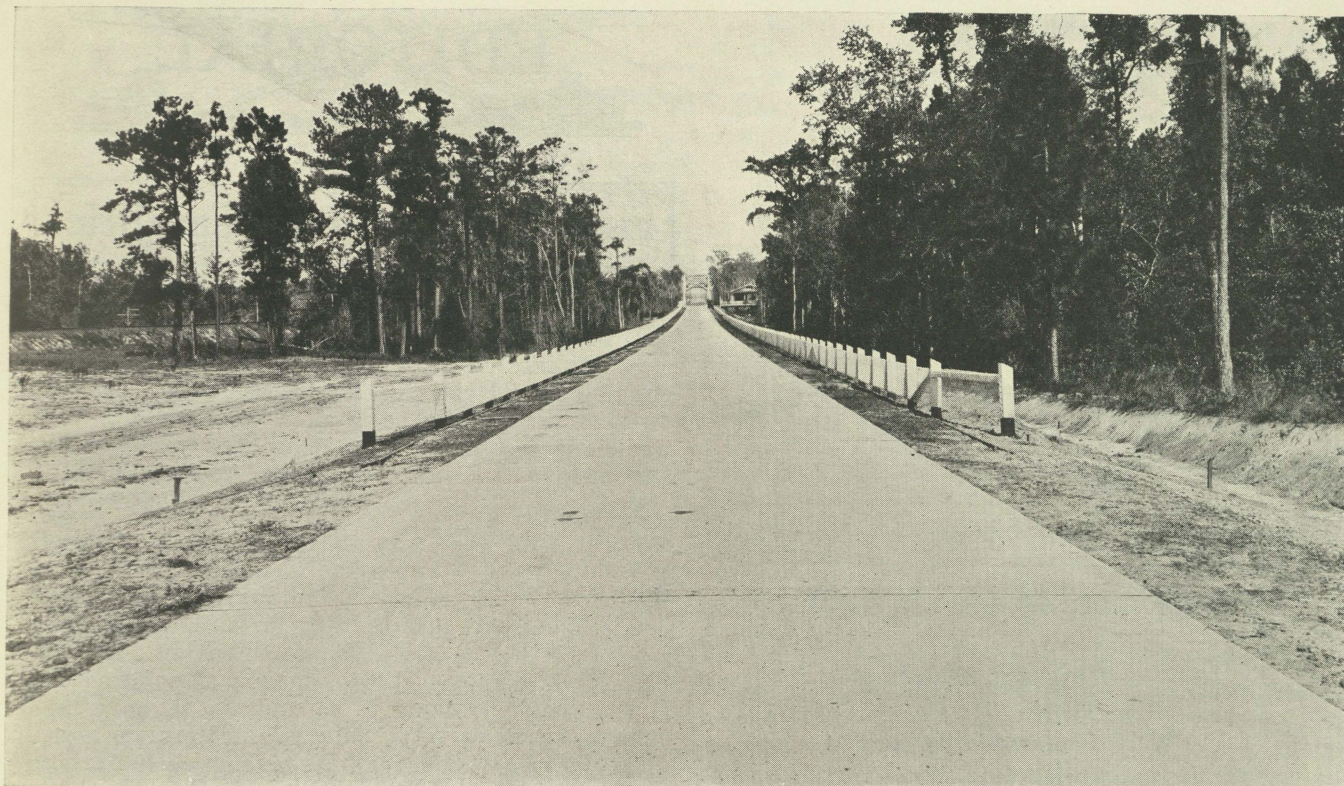
"The general rule, as deduced from the cases, is that in awarding contracts, public authorities are vested with discretion in determining who is the lowest and best bidder and their decision will not be interfered with by the courts, even if erroneous, provided it is based on a sound and reasonable discretion founded on facts and exercised in good faith in the interest of the public without collusion or fraud, nor corruptly, nor from motives of personal favoritism or ill-will, and not abused."

In other words, statutory law, court decisions, awarding officials and responsible members of industry recognize the necessity of having an administrative officer, familiar with the industry with which he is dealing, exercise a reasonable discretion with respect to the award of contracts. Failure to do this through lack of knowledge of the law, fear of criticism, or other causes, has cost the taxpayers of the United States billions of dollars each year. This point is, of course, the primary one from the viewpoint of the public, but there is another of vital interest to the industry.

The interest of responsible contractors comes from the fact that the policy of awarding to any low bidder who can supply a surety bond makes the construction industry particularly susceptible to dishonest operators. These operators may knowingly bid below cost, never expecting to complete a project, and not caring what happens to the industry or the public body. . . . The administrative official's repugnance to an award in such a case is based upon the fact that he knows that the work will not be properly done, that it probably will not be completed by the bidder, and that the surety bond furnishes no adequate recourse. Awarding officials are not particularly concerned with the fact that the bidder may lose money on a project, but they know that an irresponsible bidder, without reputation to preserve, will either abandon the project after receiving a few estimates or perform a quality of work which may need constant repairing or may ultimately lead to structural disaster.

It is common knowledge in the trade that two contractors operating under the same engineer, the same plans and specifications and the same contract, may deliver vastly different qualities of construction. We recognize that selecting on price only with respect to a suit of clothes is an unsound procedure for the layman to follow, but countenance it in the case of the complicated operations of construction. It seems almost needless to state that one not trained in the business of contracting, which involves a high degree of practical engineering skill, will not produce satisfactory results and does not deliver to a public body the quality of structure for which it pays.

Practically all of these views may be substantiated



Project 46, Road 3, Nassau County. Looking toward St. Mary's River Bridge (Project 421).

by reference to the minutes of the Joint Conference on Construction Practices, which was composed of committees from the following associations:

- American Association of State Highway Officials.
- American Institute of Architects.
- American Institute of Consulting Engineers.
- American Society of Civil Engineers.
- American Society of Mechanical Engineers.
- American Society for Municipal Improvements.
- Associated General Contractors of America.
- Highway Industries Exhibitors' Association.
- National Association of Casualty and Surety Agents.

Surety Association of America (Committee on Better Underwriting).

Having deliberated carefully on this subject and recognized conditions as they are, the conference turned its attention to constructive measures which could eliminate or better these conditions. The unanimous conclusion was that awarding officials should be provided with a standard means of investigating contractors and should apply that means. The remainder of this memorandum explains the recommendations of the conference, which are in the form of standard questionnaires for bidders, and offers certain suggestions which have already been successfully put into effect by states, municipalities and consulting engineers.

Making the Contractor Demonstrate His Fitness for the Specific Project.

The deliberations of the conference lead to a very specific conclusion relative to awarding contracts; namely, that bidders on public work, whether large or small, should be made to demonstrate their fitness to undertake the specific project, and that contracts should not be awarded to those believed unable to fulfill their contracts.

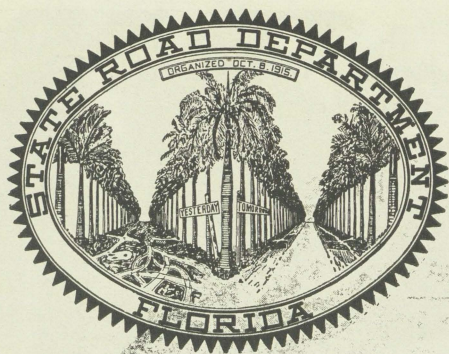
At first there was a fear on the part of the engi-

neers that this process of qualifying, by means of the standard questionnaires, might tend to restrict the number of responsible bidders. (No one was interested in the irresponsibles, the dishonest ones and the repeat defaulters.) It was finally concluded, however, that qualifying increases rather than decreases the number of responsible proposals. Such has proved to be the case wherever the qualifying procedure has been established. Many concerns who have abandoned public work because of its awarding practices and because of the character of their competitors have returned to the field. . . .

Two methods of qualifying are in use. One involves the determination of responsibility after bids are received, while the other involves a determination before plans are issued for bidding.

In the beginning the plan favored most was that of using the standard questionnaires and then rejecting any bidders found to be irresponsible. This procedure, however, has certain objections in that it throws the awarding official open to suspicion and makes him liable in many instances to political attacks for rejecting a low bid. The other plan is of qualifying in advance before issuing plans and specifications, which removes these objections. The advertisement in this case carries notice that all bidders must qualify for the specific project before they will be given the plans and specifications. A bidder may be found capable of carrying out a half-million-dollar job and he is then permitted to bid on work of that magnitude. The burden is upon him to convince the public department in advance that he is competent to assume the contract and carry out its provisions. The contract then goes to the low bidder, if he is low enough to satisfy the awarding officials.

(Turn to page Five)



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Published Monthly

Official Publication of the State Road Department

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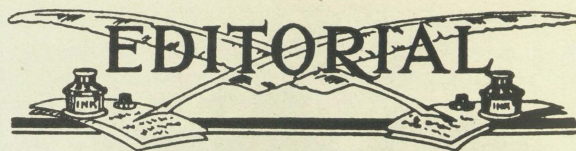
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Volume V

June, 1928

Number 6



Florida's Motorcar Fatalities

FLORIDA was one of nine states in the Union to show a reduction in the number of motorcar fatalities in 1927 as compared with 1926, occupying second place in this respect with a decrease of 16.41 per cent. The fatality list of 512 in 1926 was the largest of all time but in proportion to registration 1920 and 1925 were the most disastrous years.

Motorcars are on the road in Florida twelve months in the year, day and night and in all kinds of weather. It is impossible to determine the total number of hours vehicles are in motion in each state but it is believed that Florida, in the annual aggregate, leads the country. Its comparatively low fatality record, therefore, is little short of astounding and traffic experts, seeking to account for it, have been able to attribute it to only two factors—a multiplicity of paved roads, and the high speed limit, both tending to eliminate congestion.

It is noticeable that the most disastrous years, in proportion to registration, were 1920 and 1925. In 1920 paved roads were few and the speed limit was 30 miles an hour generally while many counties permitted a maximum of only 25 miles an hour. In 1925 the speed limit was the same during the first six months but hundreds of thousands of foreign cars were on the roads, attracted here by the boom. Slow speed breeds congestion and congestion increases the accident hazard, the records of 1920 and 1925 offering convincing proof of this fact. The large number of paved roads now available results in a better distribution of traffic and the state's 45 miles an hour speed limit permits it to clear quickly.

That congestion is the most deadly of all accident hazards is attested by the fatality records of the cities. Fatalities on the open road in Florida are decreasing steadily but they continue to be many in the cities, the majority of the deaths last year having occurred in the streets of municipalities.

The comparative figures from 1918 through 1927 (registration includes both passenger and commercial cars) follow:

Year	Registration	Fatalities, per fatality	Number of cars
1918.....	47,652	50	953
1919.....	56,835	57	997
1920.....	75,189	107	712
1921.....	99,253	93	1,067
1922.....	117,959	122	950
1923.....	157,675	178	886
1924.....	210,587	243	867
1925.....	316,845	454	698
1926.....	401,562	512	784
1927.....	394,734	428	922

"LOWEST AND BEST BIDDER"

(Continued from page 3)

Why the Procedure of Qualifying in Advance is Favored by Responsible Contractors.

The procedure of qualifying in advance is favored by responsible contractors for the following reasons:

1. It saves an enormous amount of money expended in the preparation of proposals. To perform investigations, locate sources of material supply, compute quantities, secure sub-bids, and devise a plan of construction, all of which is necessary for an intelligent proposal on a government building, may cost \$1,000 or \$1,500. Naturally, the contractor dislikes to waste the money by being disqualified after bids are received.

2. It insures that all bidders who submit proposals are competent to do the work, and that the award will be made without protracted delay, legal battle or subsequent difficulty with the accounting department.

3. It removes the temptation of awarding officials to make awards to irresponsible bidders, who would not deliver the quality of work that must be produced by a concern of integrity.

Irrespective of the plan of qualifying used, it is recommended that the standard questionnaires or something similar in form be employed. They have received long and careful study from some of the best minds in the business and professional world. They have been approved by the Clearing-House Section of the American Bankers' Association and adopted as standard by the American Association of State Highway Officials. Their outstanding advantage is the establishment of an easy means of cross-checking on defaults, experience and performance of contractors.

From the practices of the many states or other pub-

lic bodies now qualifying bidders, it would not be difficult to develop specific procedure for government work with respect to the handling of questionnaires. Also, it would not be difficult to determine a few basic gages to assist the departments in judging responsibility.

Suggested Minimum Requirements

The Associated General Contractors are now investigating this subject jointly with highway engineers. Final conclusions have not been formed, but judgment seems to be crystallizing on the following:

- (a) Under ordinary circumstances, a contractor probably should not bid on a project more than double or treble the value of the largest of a similar nature that he has previously constructed.

- (b) In building-work, he should probably not have on hand projects which, all totaled, exceed twenty times the amount of available liquid assets.

- (c) In highway and engineering work, requiring a heavy equipment outlay, he should not have on hand projects valued at more than ten times his available liquid assets. This presumes that his equipment is paid for.

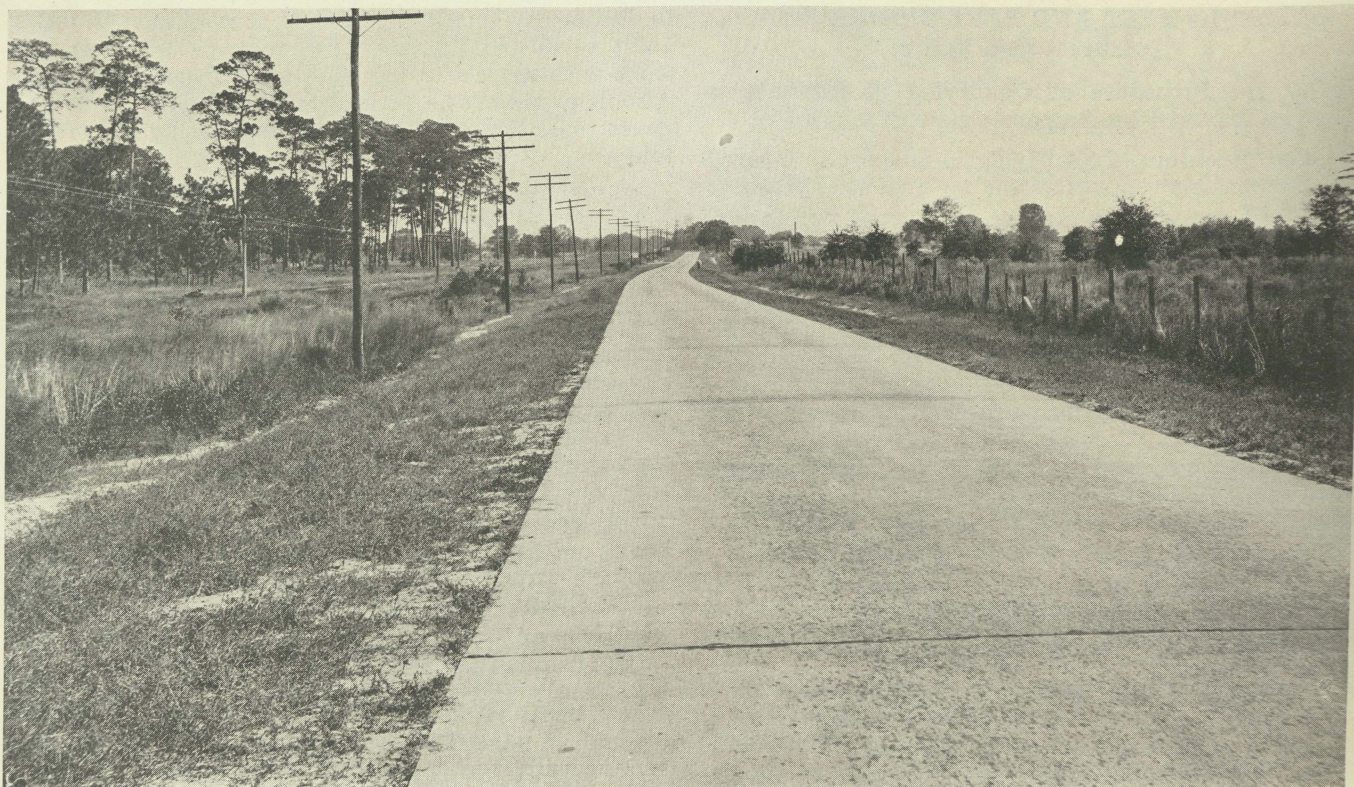
Those suggested minimum requirements, low as they are, if applied by the government would prevent many defaults and save the government a great amount of money. They would also mitigate against the over-expansion of construction companies and make their growth more scientific and substantial. Unquestionably, they would save from bankruptcy many small and medium-sized contractors who have potentialities for success in construction, but who over-expand suddenly and meet disaster.

In conclusion, it seems desirable to emphasize that this matter of responsibility and awarding-practices is a most vital one to both industry and the govern-

(Turn to Page Twenty)



Project 562-B, Road 8, Polk County.



Project 529, Road 1, Suwannee County. Near Live Oak.

Plan for Great Northern and Southern Transcontinental Motor Highways

As Outlined by R. A. Carpenter, Chief Engineer, West Chicago Park Commissioners

AT THE present time there are many highway engineers, motorists and a host of other people who are thinking seriously and attempting to visualize the needs and requirements of the coming generations with regard to adopting plans for major highways, so that in the future it could be said of the present generation that it had foresight and planned wisely in laying the foundation for great arterial highways across the continent. With two great transcontinental highways established, lateral highways leading to and from the great centers of population would logically follow.

These lateral or sub-highways could be planned and constructed intelligently if two main transcontinental highways were to be constructed from east to west across the United States. The writer is of the opinion that today there are many public highways being considered and in many instances highways will be constructed costing vast sums of money, the expenditure of which will not be warranted (if it should be found possible in the future to promote and construct with the approval of Congress of the United States in co-operation with state aid, two great highways across the country) from the fact of "getting the horse behind the cart"; that is, building highways too much at random widths without regard to traffic requirements or leading on to a great super-highway.

Of course there are many who read this article who will at once say: "There is something to the plan but it is wholly impracticable and could not be carried out as the cost would be prohibitive to start with." Let

those who take this view look into the past and see some of the things that were accomplished by man power alone, i. e., the erection of the pyramids of Egypt, the great walls of China, and, coming down to modern times when modern appliances were used, the construction of the Suez and Panama canals.

Construction machinery has been greatly improved since the building of the Panama canal. At present there is scarcely a project of imminent necessity that could not be met with the resources at the command of the United States.

The plan briefly outlined (without going into detail) proposes to construct two great super-highways across the United States from coast to coast:

The Northern Transcontinental Highway, approximately 3,350 miles long, beginning at or near No. 9 Boston and running west to Worcester and Springfield, Mass., then to Kingston, Binghamton, Elmira and Jamestown, N. Y.; Erie, Pa.; Cleveland, Sandusky and Toledo, Ohio; Elkhart, South Bend and Michigan City, Ind.; Joliet, LaSalle and Rock Island, Ill.; Davenport, West Liberty, Des Moines and Council Bluffs, Iowa; Omaha, Grand Island and North Platte, Neb.; Cheyenne, Rawlins and Granger, Wyo.; Pocatello, Shoshone and Nampa, Idaho; Baker City, Umatilla, The Dalles and Portland, Ore.

The Southern Transcontinental Highway, approximately 2,800 miles long, would begin at or near Savannah and running west to Helena and Americus, Ga.; Meridian, Jackson and Vicksburg, Miss.; Monroe and Shreveport, La.; Marshall, Dallas, Sweetwater,



Road 2, Marion County. Between Lowell and Ocala. Sheet Asphalt.

Pecos and El Paso Texas.; Deming, N. M.; Tucson, Maricopa and Yuma, Ariz.; Imperial, Riverside and Los Angeles, Cal.

The routes as outlined are in no sense a location that could not be changed, the idea being to locate the highways approximately correct with regard to directness, also bi-secting the country and paralleling railroad trunk lines which usually traverse the best routes through the mountainous districts.

A careful survey would find many engineering obstacles and lead to a great many changes before the final locations could be made. What we are trying to point out is the general principle and the future needs for main highways.

The plan for these great auto highways as shown by the accompanying sketch contemplates four roadways, viz.:

A 250-foot (in width) auto highway divided into four roadways (one-way drives).

Two outer drives 60 feet in width each, for light traffic (east and west).

Two inside drives 56 feet in width each, for heavy traffic, busses and trucks, with a 6½-foot (in width) cement sidewalk on each side, one foot above the grade of the roadways and providing for an ornamental fence 6 feet in height allowing for advertising space, electric lights and room for pedestrians to walk.

The roadways shall be separated by a cement curb one foot in width and two feet in height, except that openings shall be made in the curb at each mile for vehicles to pass from one roadway to another, should necessity require; also openings to all roadways at the entrances and exits of all roads entering and leaving the highway.

It is proposed to establish the grade of the top of the roadway 4 feet above the average elevation of all level country for the purpose of giving proper drain-

age to the roadways and also lessen the cost in going over all highways, and over or under railroad crossings, whichever could be best accomplished to avoid grade crossings.

This plan proposes to acquire the right-of-way for 250 feet in width after careful surveys are made and a location has been adopted, in the same manner as a railroad would acquire lands (by condemnation or otherwise), and lay out these great highways with practically the same alignment as a railroad, giving all tangents possible and a minimum amount of curvature, the maximum grade not to exceed 10 per cent. The alignment should be such that in comparatively level country, the drivers of cars on these great thoroughfares could see a great distance ahead—in some cases, several miles. On a road of this character a speed of 45 or even 50 miles per hour could be attained with more safety than a rate of 35 miles per hour over our average improved auto highways as at present constructed, widths of roadways and alignment taken into account.

The routes of these highways as outlined are arranged as being the most direct. They do, however, for the major portion of the distance follow established auto highways. If these super-highways were to be constructed, it is possible an advantage could be gained in securing the right-of-way by absorbing such right-of-way as these auto roads along the proposed route now occupy.

In the main, however, very little would be accomplished, as these great highways are intended in no sense for local traffic, and a parallel autoroad is advisable. Admission to these transcontinental highways should be not less than 10 miles apart, and in the majority of cases, much more. At all principal state auto road crossings there shall be an entrance to the transcontinental highway with oil and gas sta-

tions and waiting stations for bus passengers every 10 miles, semaphores for halting traffic at this point when found necessary and special arrangements for vehicles desiring service at gas stations, without blocking the balance of traffic. It is proposed to locate these great highways so as to avoid entering the city limits of any of the cities and towns along the routes. As the acquisition of the right-of-way in cities and towns would be prohibitive, it would be impossible to get the proper alignment to the highways by entering the city limits. At all principal cities and large towns a lateral highway shall be made connecting with the super-highway.

Of course there is no hard and fast rule that these highways shall be 250 feet in width throughout their entire length. It would be impracticable to do this. There are portions where traffic requirements are less. In the heavy mountainous districts where the majority of traffic could be considered through traffic, with a very small amount of so-called local traffic, there would be no necessity for a 250-foot highway and same could be reduced possibly to one-half of the width.

Referring to the east end of the northern route between Boston and the Hudson River, 150 to 200 feet in width would probably meet requirements of traffic. From the Hudson River to Cheyenne, Wyo., the writer is of the opinion that the full width of 250 feet should be allowed, the same adjustment to apply to the southern route.

It is impossible to make a comprehensive estimate of the cost without engineering data. Take the northern route for example. With a 3,350 mileage and figuring 30.33 acres to the mile on a 250-foot right-of-way, we have 110,605 acres figured at \$200 per acre (the price of the good land with the poor land), or a cost for the right-of-way of \$20,321,000. By not entering the limits of cities and towns probably this figure would be sufficient.

The big cost remains after the right-of-way has been secured. An approximate estimate for the 3,350 miles on the northern route is \$2,500,000,000 or an average of \$746,270 per mile. This figure is to include right-of-way, grading, cutting and fill, bridges, retaining walls, paving, lighting, cables and ducts, walks, fences, etc.

The approximate cost of the southern transcontinental highway is \$2,100,000,000.

If the grade through the level country were established slightly above the high-water mark in lieu of four feet above the average level, the great reduction in yardage for fill would lessen the cost to a great degree, but the frequent changes in grade, to avoid grade crossings of intersecting cross highways, would make a much less desirable gradient. Lessening the cost of the lower established grade would be "falling short of the mark."

The average cost of roadway throughout the mountainous districts, where construction work in the way of blasting rock and grading is much more expensive than in the level country, could be offset by a lesser width of roadway, as traffic requirements would naturally be considerably less in these districts.

If it were possible to construct two auto highways as herein outlined, within a year after their completion or opening, a majority of the people in the United States who indulge in even limited auto tours would go over these highways, going west on one road and returning over the other and vice versa. There would be plenty of cross auto roads connecting these

two main highways, and there would be a constantly increasing traffic from the time they were opened to the public.

It is not in any way possible that such a gigantic undertaking as the construction of these two great super-highways could ever be accomplished by private capital. It is too large and complex.

It would be necessary for the Congress of the United States to approve and get behind an enterprise of this character in co-operation with state aid and under the jurisdiction of the Interstate Commerce Commission. Low rate long term bonds could be issued. With the government backing the proposition these bonds could be readily absorbed.

Naturally in considering any proposition, great or small, the first question to be considered is, is it necessary and will it pay? There is no question that if main highways as herewith presented were constructed, there would be sufficient traffic to practically fill the roadways to the maximum throughout the greater portions within a short time after opening. All feeder roadways from the larger cities would be started as soon as these sub-highways were assured and would be connected and ready to receive traffic on the opening of the main highway. Consequently, with all these main feeders leading on to the main highway, receiving and discharging traffic, business would be brisk from the start.

It would be a special privilege to use a road of this character when a 50-mile speed could be granted at less risk than on the ordinary road at 35 miles per hour, and for this privilege the motorist would be willing to pay a toll for a period at least. This not only applies to the motorist who is out for pleasure but to the companies running a line of freight trucks and the numerous bus companies operating nearly everywhere.

A toll charge should be made commensurate to taking care of fixed charges. For example, say \$20 from coast to coast for an ordinary 5-passenger automobile, with a pro rata rate toll charge for distances between principal points intermediate; also an increased toll rate on trucks and passenger busses according to weight of vehicle plus the load.

The revenues required for upkeep and maintenance of these highways would not necessarily all accrue from toll, as advertising space along the fence throughout the entire distance of the highway would bring in an enormous amount of money. There could not be a more advantageous place to erect signboards. There would scarcely be a freight motor truck company or passenger bus company in the whole country who would not want to secure a franchise to do commercial business on these wonderful highways.

Aside from this, power and utilities companies would be willing to pay well for the privilege of having power and transmission lines securely housed in the proper conduits ready to serve the public, light the great highways and develop their own resources. Such great illuminated highways, plainly visible at all times of the day and night, would naturally become the two main transcontinental aerial routes across the continent, with convenient landing fields. For this privilege, the United States government would probably be willing to install and maintain the lighting service consisting of 1,200 C. P. lamps spaced 250 feet apart on each side of the main highway. Such a plan of lighting, coupled with the lights from thousands of autos and aeroplanes above, would present a wonderful spectacle at night. Two such great over-



Project 659, Road 3, Clay County. Near Green Cove Springs.

land highways, extending from coast to coast, would be of inestimable value to the government for transporting troops and supplies over land areas across the continent in the event that this country were thrown into war. It goes without saying that there are powerful interests, financial and otherwise, throughout the country, who would bitterly oppose an enterprise of this character, namely, the railroads, unless they also secured a franchise to carry freight and passengers over the highways.

The United States government will undoubtedly expend a large sum of money for flood control for the Mississippi Valley by constructing adequate levees along the river banks in the lowlands and impounding the river waters by dams at suitable places to create a more normal flow. Logically, if two transcontinen-

tal motor highways were constructed across the United States from east to west, a north and south super-highway would be of equal importance, following the Mississippi river from St. Paul to New Orleans. Why not in constructing the levees, where required, make them sufficiently wide, to construct thereon a first-class super-highway, provided the proper alignment can be had, and connect up the two transcontinental motor highways as herein outlined, as well as providing a great highway for the Mississippi Valley?

It is not the thought of the writer to go into any minute detail, as it is impossible to do so without having engineering data at hand—but rather to give a general outline, which, after all, might have a few thoughts worthy of consideration when we try to visualize the needs of the future.—Nation's Traffic.

RELOCATED HIGHWAY ASSURES POPULARITY OF LAKE LURE, N. C.

During 1928, North Carolina's state highway No. 20 will bring thousands of tourists into the Chimney Rock region, near Asheville. There in the valley of the Rocky Broad River a private group, Chimney Rock Mountains, Inc., has staked millions of dollars to make the incoming of these thousands not just a matter of chance but a sure thing.

Tourists, they decided, will go far to see this beautiful valley, flanked with forest covered mountains, if they know that comfortable accommodations await them and smooth highways exist to take them there. One more ingredient—a lake—and the prospects for a successful tourist resort would be perfect. So Lake Lure was planned, the forming of which necessitated relocating six miles of the main highway, route 20, at private expense. This relocation, completed during 1927, has already proved a

vital part of this notable development, as attested by the rapidly growing popularity of Lake Lure's forty miles of shore line.—The Highway Magazine.

MEMORIAL HIGHWAY FOR WASHINGTON

A memorial highway, stretching in a circle from the national capital into Virginia and Maryland and encompassing some of the most historic territory in the country has been proposed to the United States commission for the celebration of the two hundredth anniversary of the birth of George Washington, Feb. 22, 1932.

The road would be of two or four strips of concrete lighted over the entire route, with fountains and parks between the concourses. Nations of the world would be invited to take sections between the strips and there erect monuments to their most famous men.—Kentucky Highways.



Road 4. South entrance to Fort Lauderdale.

Cross Along the Roadside for every Person Killed in Automobile Accidents

Within Last Ten Years Would Mean One to Every Three Miles of Improved Highway, says A. A. A.

PLACING of a cross along the roadside for every person killed in an automobile accident within the past ten years would mean one to approximately every three miles of improved highway in the United States.

This statement, just issued by National Headquarters of the American Automobile Association, is based on a death toll on the streets and highways of about 175,000 within the last decade and a present system of 600,000 miles of improved roads.

The A. A. A. also pointed out that if these crosses were confined to one transcontinental highway—such as the Lincoln Highway, stretching 3,200 miles across the country—there would be over five crosses to every mile of roadway.

Turning to the non-fatal accidents on the highways and byways, the national motoring body said that if a marker was placed for every person injured in an automobile accident, there would be two to every mile of road of all types in the country, and along the Lincoln Highway there would be 158 to every mile. This is based on an average of 29 injured for every person killed and around three million miles of roads.

The A. A. A., in launching through the safety departments of its 1,047 affiliated motor clubs an intensive and continuing campaign to diminish the automobile traffic hazard on the streets and highways of the nation, declared that there must be a constant national effort on a more co-ordinated basis than has hereto been the case.

"If some cyclone or tornado should suddenly sweep down and destroy 26,000 lives and injure 754,000 peo-

ple, there would be an outpouring of sympathy and aid from every far corner of the world," Thos. P. Henry, president of the A. A. A., said. "Yet this is the annual toll on the highways of the nation and from the limited attention it receives, I often feel that many millions of our citizens often take it for granted.

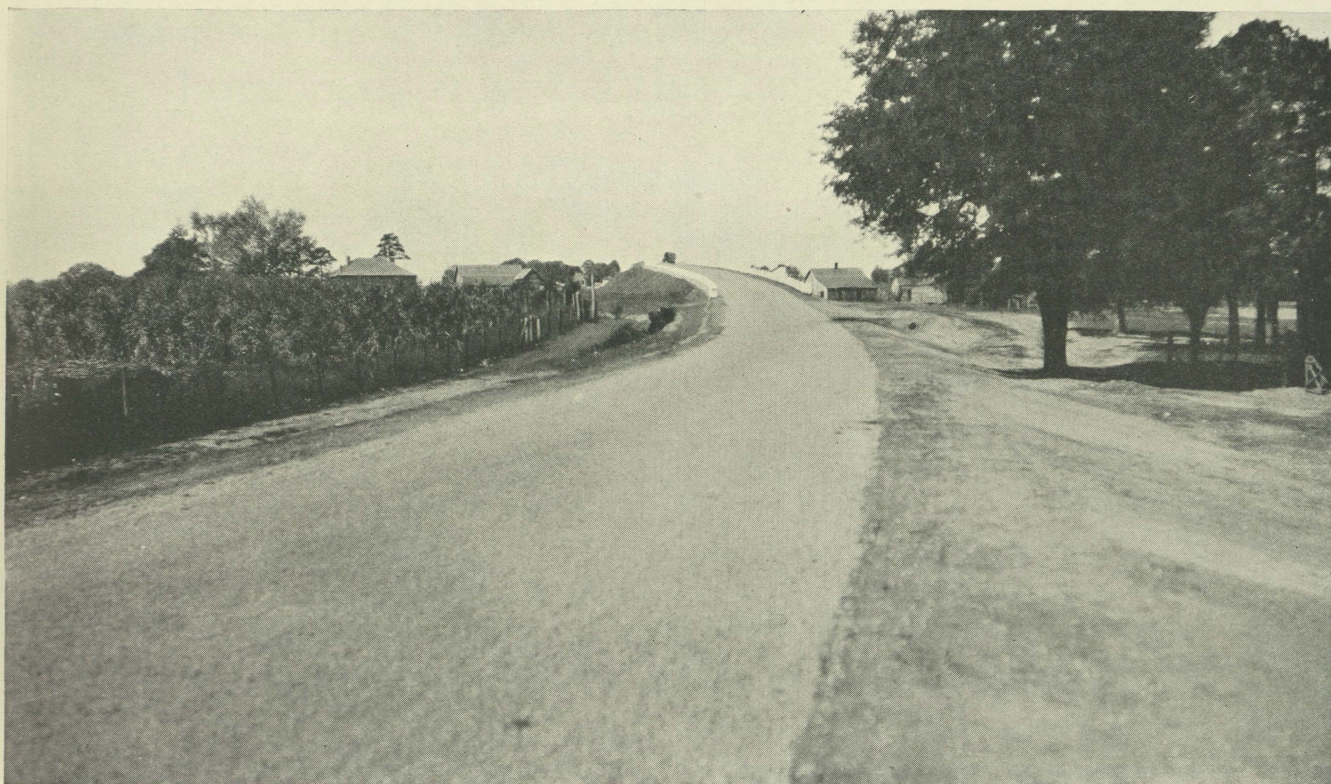
"If the automobile death rate should continue at the present rate for the next two decades the toll on the highways will exceed 520,000 persons, or a number roughly equivalent to the total present population of cities like Milwaukee, Wis., or Washington, D. C." The statement continued:

"Careful estimates of the total highway fatalities for 1927 is found to be the appalling number of 26,000 human lives. A conservative estimate of the ratio of serious personal injury highway accidents to fatalities is 29 to 1. This gives an estimated total of 725,000 serious personal injury accidents.

"Automobile deaths have been steadily gaining since 1908, and every year up to 1927 showed a mounting toll. During the second ten years, 1918 to 1927, more than five persons were killed in automobile accidents for every one person killed during the first ten years, 1908 to 1917. The deaths have steadily increased along with the gain in number of machines used.

"The economic loss due to these accidents in which personal injuries occur can probably never be known. Several estimates have been made. The most conservative is based upon the usual liability of \$5,000 per life and an average of \$175 for each personal in-

(Turn to page 20)



Road 6. Overhead Crossing at Campbellton.

Approval by the President of Bill Authorizing Federal Aid Appropriations of \$75,000,000 for Highway Building

In Each of the Fiscal Years 1930 and 1931, Assures Continuation of Program and Paving of Thousands of Miles of Important Roads, says A. A. A.

APPROVAL by President Coolidge of the bill authorizing Federal-Aid appropriations of \$75,000,000 for highway building in each of the fiscal years 1930 and 1931, assures continuation of this program which has resulted in the building of close to 75,000 miles of important interstate highways and has provided the needed impetus to road construction by the states.

This statement was issued by National Headquarters of the American Automobile Association, which fostered the Federal-Aid program and since 1921 has represented the car-owners of the nation in repelling every attempt to halt this important assistance by the Federal government in road building.

In addition to the appropriations for main highways, says the A. A. A., the measure signed by the president also carries \$7,500,000 for each of the two fiscal years for building of forest roads and trails.

The national motoring body pointed out that since 1921 a total of nearly a billion and a half dollars has been spent on the nearly 75,000 miles of the original Federal-Aid program of some 185,000 miles of important interstate routes and that it is well over one-third completed. Of this amount, says the A. A. A., the Federal government has contributed \$614,649,253, and there are 11,510 miles of highway under construction in this network of important roads to which the government will contribute \$126,486,015.

The appropriations for 1930 and 1931 are in line with the existing policy of making such authorizations

two years in advance in order to provide continuity of work on the Federal-Aid system and allow Federal and State agencies ample time to outline the construction program.

"Its importance," says Thos. P. Henry, president of the national motoring body, "is shown by the fact that it is an incentive to road-building by the states, as nearly two miles are constructed by the states for each mile built with Federal co-operation.

"There have been numerous attempts by private interests and by some governmental agencies to halt the Federal-Aid program. Each and all of these have been repelled, thanks to the aggressive stand of organized motordom. It is also a tribute to the large vision of Congress that it always has been quick to ignore attacks on Federal-Aid and by overwhelming majorities sustained a national policy which is doing so much to advance the transportation needs, to promote the development of our resources, to further social well-being, to eliminate sectionalism and encourage national solidarity."

Would Make a Good Landlord

The house agent had just informed the prospective tenant that the owners would allow no children, phonographs, radio sets, or dogs in his apartments.

"Well," said the house hunter, "We haven't any of those things, but I want to play fair with the landlord. I guess you'd better tell him my fountain pen squeaks a bit."—Georgia Highways.



Road 2. Through Fruitland Park, Lake County.



Project 571, Road 1, Madison County. Near Madison.

Ninety-five Out of Every One Hundred Automobiles Carry Improperly Adjusted Headlights, Report Says

THERE are close to 22,000,000 motor vehicles traversing the highways of the nation with improperly adjusted headlights, 95 per cent of the entire number registered in the United States, while only a little over 1,000,000, or five per cent, fully meet the requirements of what might be termed "safety lights."

This statement is vouched for by the American Automobile Association and is published in connection with its nation-wide campaign for testing of headlights, which is being carried on by the 1047 affiliated A. A. A. motor clubs, and follows a careful study of figures revealed in tests made by individual clubs.

"Properly adjusted headlights are of vital importance to safety in night driving," says the national motoring body, "and the significant figures shown by previous tests reveal that motor car owners are careless of this feature of safety or are not familiar with the importance of this feature of their car."

Some of the tests upon which the A. A. A. bases its estimate of deficient headlights are as follows:

Tests in the District of Columbia showed that lights on only 237 cars out of 4,591 examined were in compliance with the law and correctly adjusted.

The Bureau of Standards found only 22 out of 400 cars tested had proper lights and immediately launched a searching investigation for a much needed basis for correct headlamps.

In Norfolk, Virginia, only six out of 3,000 cars tested had lights complying with safety regulations.

At Scranton, Pa., the Lackawanna Motor Club found only 14 out of 400 cars tested to have "safety lights."

In a certain Eastern city, the Traffic Bureau, co-operating with the A. A. A. motor club, found only 124 out of 5,071 cars tested to have properly adjusted lights.

The A. A. A. points out that the peak of automobile accidents occur about 5:30 o'clock in the evening, when traffic is heaviest. During the period from late November until April drivers are obliged to burn their lamps at that hour and, unquestionably, badly adjusted lights cause many collisions and accidents. Another critical time for accidents is about 7:30 in the evening, when the peak of the theater traffic is a wheel.

The A. A. A. statement continues:

"It never occurs to the average motorist that aside from the safety in properly adjusted headlights there is a factor of economy resulting from a saving in the various units of the car. If headlights are out of focus, they fail to illuminate the path ahead to good advantage and the owner may resort to the use of additional lighting devices, which in cold weather may help to overload the battery. There is, in addition, much slowing down and change in the car speed where headlights glare and approaching drivers are in danger of colliding. This occasions excessive use of brakes, throttle and steering wheel.

"The first step is to learn to check up on the adjustment of the headlights at least once a month—more often if the car is kept in public garages, where it may be pushed around by headlights. The process need not be complicated, and application to any Traffic Bureau or A. A. A. motor club will give the motorist information as to method of adjustment and he will find a willingness to cooperate in having the lights tested."—Badger Highways.

NAIL PICKERS IN USE IN NEW MEXICO

The state highway department of New Mexico is ridding the roads in that state of metal objects that produce so many tire punctures. An electro-magnetic nail picker is used for the purpose.

On 16 miles of the state highway, seventy pounds of metal were picked up. The department is buying enough machines this year to cover the highways twice during the season.

According to the figures compiled by the department, the expense due to these metal objects in punctures and blowouts amounts to \$843,750 each year in that state.

The expense of operating the machine is only 47 cents a mile. By making three trips over a road, 21 miles of highway can be covered in one day with a machine.

South Dakota made some experiments last year

with astonishing results. The state highway department of Nebraska may well consider this question and report their findings to the next session of the legislature if legislation is required.—Nebraska Highways.

THE VERDICT

The recent decision of the United States Supreme Court holding that the motor vehicle operator must stop for the train and not the train for the motorist calls to mind the story of the Iowa jury's verdict in a grade crossing case. The verdict in a suit against the railroad company was as follows:

"If the train had run as it should have run; if the bell had rung as it should have rung; if the whistle had blown as it should have blew, both of which it did neither—the cow would not have been injured when she was killed."—Motorland.

What Other States are Doing

Alabama

The people of Alabama voted a bond issue of \$25,000,000 on April 12, 1927, for highway construction. The legislature assigned the proceeds of two cents of their four cent gasoline tax for paying the interest and retiring these bonds.

Arkansas

The legislature of Arkansas authorized the issuance of \$13,000,000 of highway notes annually for four years, making a total of \$52,000,000. The gasoline tax was increased to five cents a gallon.

California

The legislature increased the gasoline tax from two to three cents. A bond issue of \$10,000,000 for the elimination of grade crossings was voted on by the people last November.

Colorado

A bus and truck law was passed levying a tax of one mill per passenger-mile on buses and two mills per freight ton-mile on trucks. The gasoline tax was increased from two to three cents.

Colorado's budget for highway construction and maintenance for 1928 is \$5,058,000. Of this amount, \$1,288,437 will be spent for paving. These funds are provided by a three cent gasoline tax, half mill levy, registration fees and Federal aid. Thirty-five miles of pavement were laid last year. At the end of this season, Colorado will have about 300 miles of concrete paving and about 20 miles of asphalt.

Illinois

The highway department of Illinois will spend \$57,000,000 for construction in 1928. This includes the construction of 1,135 miles of concrete pavement, 386 miles of grading and 171 bridges. Besides, Cook County will construct 177 miles of concrete pavement in and around Chicago.

Virginia

The gasoline tax went to five cents on January 1, 1928. Six states are now collecting a five cent gasoline tax.

Missouri

The highway department will spend \$18,000,000 on road construction in 1928. The plans are to grade and build the necessary bridges on 660 miles, and to surface 609 miles with concrete and gravel. An additional bond issue of \$5,000,000 was authorized.

Michigan

The gasoline tax was increased from two to three cents a gallon. The speed limit of 35 miles an hour was removed but the driver of a car is held responsible for accidents due to excessive speed. Michigan has 375 miles of lighted rural highways.

Washington

The state legislature appropriated \$23,362,360 to be expended under the direction of the state highway department.

New Jersey

A \$30,000,000 bond issue was voted by the legislature for financing a five-year highway program. The bond issue was submitted to the people last November. A two-cent gasoline tax was authorized. Personal property taxes on automobiles was abolished.

New York

More than 500 miles of new pavement was constructed on the state highway in 1927. The width varies from 20 feet to 40 feet.

Tennessee

The state highway department was authorized by the state legislature to borrow \$11,500,000 on short term notes during 1927 and 1928 to build new bridges; \$9,500,000 of the notes to be retired by the collection of tolls on eight specified bridges.

North Carolina

The state assembly authorized an additional bond issue of \$30,000,000 for highway construction. The state highway department was authorized to operate toll bridges and ferries where desirable.

Maryland

A bond issue of \$2,125,000 for road construction and \$1,000,000 for highway bridges was authorized by the legislature. These bonds are to be issued in 1927 and 1928.—Nebraska Highways.

CANADIAN AUTOMOBILE ASSOCIATION PRAISES U. P. ROAD BUILDERS

Dr. P. E. Doolittle, president of the Canadian Automobile Association, and one of America's pioneers for good roads could not come to the recent meeting of the Northern Road Builders' Association, but in a message to Fred S. Case of the Sault he expresses appreciation for what the Upper Peninsula road builders have done for Canadian motorists.

Because of the break from Sault, Ontario, to Port Arthur, in the Trans-Canadian Highway, trans-continental Canadian motorists pass through northern Michigan on their way east or west and unofficially this route is part of the "Trans-Canada" Highway.

"It would give me much pleasure to express to them," the message said, "how greatly we appreci-

ate the road development especially from the Soo westward until Canada builds the broken links in the Trans-Canada highway around Lake Superior.

"The route through the Upper Peninsula will be the international route for Canadians between the East and the West. That they are building well I can attest, having travelled from Duluth to the Soo last summer."—Michigan Highways.

LONGEST IN THE WORLD

The world's longest concrete bridge, stretching 15 miles across Lake Pontchartrain to connect the Chef Menteur Highway leading into New Orleans with Slidell, La., was formally opened to traffic recently. Ten miles of the span is over water, the remainder being causeway approaches.—Exchange.



Project 604, Road 4, Volusia County. Near Port Orange.

ELEVATED ROADS MAY SOLVE TRAFFIC PROBLEMS

Still seeking a solution of the problem involved in building the highway of the future, capable of handling tremendous automobile traffic, Chicago engineers believe that they have struck a happy idea.

They propose, and with the backing of the city council committee on traffic regulation, to utilize air rights over railroad tracks to build an extensive system of elevated highways. These broad, through thoroughfares would provide a means for high speed traffic with grade crossings eliminated.

The elevated highway idea recurs in almost all plans for settling city traffic difficulties. Chicago proposes to build elevated arterial thoroughfares in strategic positions, but this scheme received a temporary setback when voters revolted and turned down all bond issue projects at the April election.

It is the idea of the council traffic committee that this idea of elevated roadways can be carried a step further in cooperation with the railroads. Tracks radiate in all directions from the city, with the air rights above them at present wasted. These rights would be utilized for construction of wide streets for high speed travel.

"The cost of the comprehensive system of elevated through highways will undoubtedly be great," the council committee says. "That the cost may reach \$250,000,000 or more is quite possible. This is a large sum, but if one will consider the volume of traffic such a comprehensive system of elevated highways will handle and the benefits which will inure to the whole Chicago metropolitan area, the justification of the expenditure will be apparent."

To meet the cost, it is proposed to establish an aerial highway district with power to issue bonds and levy taxes. So serious has the traffic problem become that the proposal calls for establishment of a separate governing body to deal with it.

At the same time, the Chicago Motor club is calling attention to the necessity for 40-foot highways outside of the cities, in order to carry increasing traffic. This organization expresses the opinion that even 40-foot roadways may be cramped within five or six years.

For handling city traffic, aerial highways are receiving the greatest attention and meet highway engineers' ideas of the coming arterial thoroughfares within large metropolitan areas.—Michigan Roads and Pavements.

CAN'T KEEP UP

No matter how far ahead we may be planning our highways, no matter what our improvement of traffic facilities may be, we just can't keep up with the fast-speeding automobile.

There's the new Holland vehicular tunnel, for example. This pair of pipes under the Hudson river at New York has been devouring and ejecting automobiles for about four months. During that period nearly 2,500,000 motor vehicles of all types have passed through it.

Today we plan 100-foot highways, tomorrow they will have to be extended to 200 feet, and before long we shall have to build double-deck roads to accommodate slow and fast traffic.—Kentucky Highways.



Project 7, Road 2, Hamilton County. Looking toward Jennings.

Danger From Falling Aircraft

The public has often been warned, says Safety Engineering (New York), of the danger of air vessels suddenly becoming unmanageable and crashing down, endangering people and property which may be in their path. It goes on:

"Herewith is shown the photograph of an accident which occurred on March 24 at Quincy, Massachusetts, wherein a plane suddenly got out of control and crashed down on the roof of a house and landed in the yard a mass of debris. The pilot and passenger jumped for their lives with parachutes and landed in the water of Quincy Bay. Such accidents as this might kill and injure many people and, as

more and more air vessels come into use, this hazard must be taken care of in some manner. We do not want to wait until an airship crashes through a school roof and kills a number of children, or some such catastrophe, to seek a remedy.

"This hazard of falling air vessels is increasing day by day, and the time has already arrived when precautions must be taken for the safety of persons and property. On account of the very nature of airship flights, this will prove a serious and hard problem to be solved by safety, but it should be given the attention which it deserves without delay."—Literary Digest.

SETBACKS

When Abraham Lincoln was a young man he ran for the legislature in Illinois and was badly swamped.

He next entered business, failed and spent the next seventeen years paying the debts of a worthless partner.

He was in love with a beautiful young woman to whom he became engaged and then she died.

Later he married a woman who was a constant burden to him.

Entering politics again, he ran for Congress and was badly defeated.

He tried to get an appointment in the U. S. Land Office and failed.

In 1856 he became a candidate for the Vice-Presidency and was again defeated.

In 1858 he was defeated by Douglas.

One failure after another—bad failures—real setbacks. In the face of all this he eventually became one of the nation's greatest men, if not the greatest.

When you think of a series of setbacks like that doesn't it make you feel small to become discouraged just because you think you are having a hard time in life?—Shel-Bee News.

A total of 3,530,000 cars and trucks were manufactured in 1927, having an aggregate wholesale value of \$2,556,750,000, according to figures compiled by the National Automobile Chamber of Commerce. The average retail price during the year, of passenger cars, was \$953, and of trucks, \$1,053.

"Oh, well," said the painter, as he fell off the scaffold with a bucket of paint in each hand, "I'm going down with flying colors, anyway."



Project 605, Road 8.

EXCELLENT ROADS LEAD TO COOLIDGE VACATION SPOT

President Coolidge's selection of the northwestern tip of Wisconsin for his summer vacation will take him into a water-swept, forest-laden plateau section that is known throughout the country as a famous area for motor touring, with excellent highways making it accessible from every part of the United States.

The American Automobile Association, anticipating that millions of motorists are interested in the vacation ground selected by the President, today issued a summary of motoring and recreational facilities offered in the territory chosen.

The Chief Executive will spend his vacation on the Henry Clay Pierce estate, which is located six miles south of Brule, and about 35 miles southeast of Superior on United States highway No. 2, which runs from the northeast tip of Michigan across the United States to Washington.

Ideal weather conditions, with delightful days and cool nights; excellent bass and trout fishing, hundreds of lake and shore resorts, smooth paved highways, with many direct and optional routes and thriving and attractive cities are among the features that stand out above others in the Presidential vacation land, according to the national motoring body.—Exchange.

Very Unusual

Lawyer—"You say you passed his big truck near Scott's Corners. Did you notice anything peculiar about it?"

Witness—"Yes; it wasn't in the middle of the road."—Life.

Me Too!

In Detroit, recently, two autoists met in an alley too narrow to permit them to pass each other. One of the autoists rose in his car and shouted at the other:

"I never back up for any d—m fool."

The other driver quietly put his car in reverse, backed out, and replied:

"That's all right. I always do."

Mexican Golf

Pedro—"What's Jose been doing with that pistol?"

Miguel—"He's just made a hole in Juan."—Life.

The Attorney Pleads

It was a stormy night in mid-ocean. One of the ship's passengers, a judge, was trying to cheer up a fellow traveler, a lawyer.

"Isn't there something I can do for you?" asked the judge.

"Well, your Honor," returned the lawyer, "you might overrule this motion."—Capper's Weekly.

The Insult

"And," continued the witness on the stand, "he sat there as sober as a judge—"

"Here!" interrupted the court angrily. "I'll have you understand I'm not sober."—American Legion.

One Final Request

"Have you any last message?" asked the warden, just before the trap was to be sprung.

"I'll say so," was the victim's answer. "Tell the prosecuting attorney to go to hell."—American Legion.

THE LATEST SAVINGS PLAN

With so many inducements offered these days by banks to encourage savings, the cashier of the Hill-side Trust Company, Newark, New Jersey, thought of some other method besides handing out shaving sets, roller skates, fountain pens, and the like, to those who opened new savings accounts. Accordingly, he buttonholed one of his depositors with the query:

"Would you be interested in a new savings plan I have devised, something entirely new? Instead of paying so much a week toward a Christmas fund, why not bank one cent a day, doubling the amount daily for a month?"

"That's easy. Suppose we both try it, Brown," he responded, as he beckoned another who joined them at the moment.

"All right," said Brown. "I'm with you. It's a childish idea. But we might as well have some fun."

About that time Smith was in it too, who figured that it was a sort of a nuisance, but that perhaps in a month they would accumulate a hundred dollars or so that way—and have done with the Christmas club account for next year. Thus with three ready to sign up for it, the cashier thought it was time to explain the system in detail, lest more come than could be served. This is the way it works out:

1	.....	\$.01
2	.....	.02
3	.....	.04
4	.....	.08
5	.....	.16
6	.....	.32
7	.....	.64
8	.....	1.28
9	.....	2.56
10	.....	5.12
11	.....	10.24
12	.....	20.48
13	.....	40.96
14	.....	81.92
15	.....	163.84
16	.....	327.68
17	.....	655.36
18	.....	1,310.72
19	.....	2,621.44
20	.....	5,242.88
21	.....	10,485.76
22	.....	20,971.52
23	.....	41,943.04
24	.....	83,886.08
25	.....	167,772.16
26	.....	335,544.32
27	.....	671,088.64
28	.....	1,342,177.28
29	.....	2,684,354.56
30	.....	5,368,709.12
31	.....	\$10,737,418.24

—Dirk P. DeYoung.

The right of a state to tax interstate busses on a mileage basis has just been upheld by the U. S. Supreme Court. The decision was based on a case appealed from Connecticut and held that the state had a right to impose a tax of one cent a mile for each mile traversed by motor vehicles used in interstate transportation. Proceeds from the tax were

placed in the state highway maintenance fund. The Supreme Court holds that this is not an excessive tax and that it is not a burden on interstate commerce, due primarily to the fact that the busses use the highway and that the tax collected is used for the maintenance of same. The decision is regarded as of importance by the American Motorists Association, which has sent a full text of the decision to its affiliated clubs who have truck and bus divisions. —North Dakota Highways.

WEDDING BELLS

On June 12th, at Moultrie, Georgia, home of the bride, Mr. Wilbur M. Boozer, assistant office engineer of the State Road Department, was married to Miss Lucy Barber. FLORIDA HIGHWAYS extends sincere congratulations and all good wishes.

NO NEW STATUS REPORT THIS MONTH

We did not like to "hook up" the two items of information, but our failure to present a new "status of construction" report this month, is a direct result of the above wedding. Mr. Boozer, the assistant office engineer, is the statistician who compiles these reports and while he has been away on his honeymoon we have been unable to secure the compilation. Next month it is our intention to present two reports, and catch up. This, however, explains our reprinting of the status report which appeared in our May issue.

Museum Stuff

"What is a whippetree?" asks the Sioux Falls Argus-Leader. "What is a thill? These once-familiar words have a strange sound in this motorized age. For the benefit of the younger generation it may be necessary to explain that whippetrees and thills are essential parts of a buggy."

Oh, yes, to be sure. And what is a buggy?—Detroit News.

Raising the Ante

A certain national association was holding its convention in Washington and wanted to be photographed on the White House lawn with Mr. Coolidge. That was arranged, and finally the appointed hour came.

"Now, Mr. President," said Sanders, the secretary, "these people thoroughly understand from me that you are not going to be called on for a speech."

"Well," ejaculated the President, "if they didn't understand what you said, I'll amplify it by saying nothing."—Farm Journal.

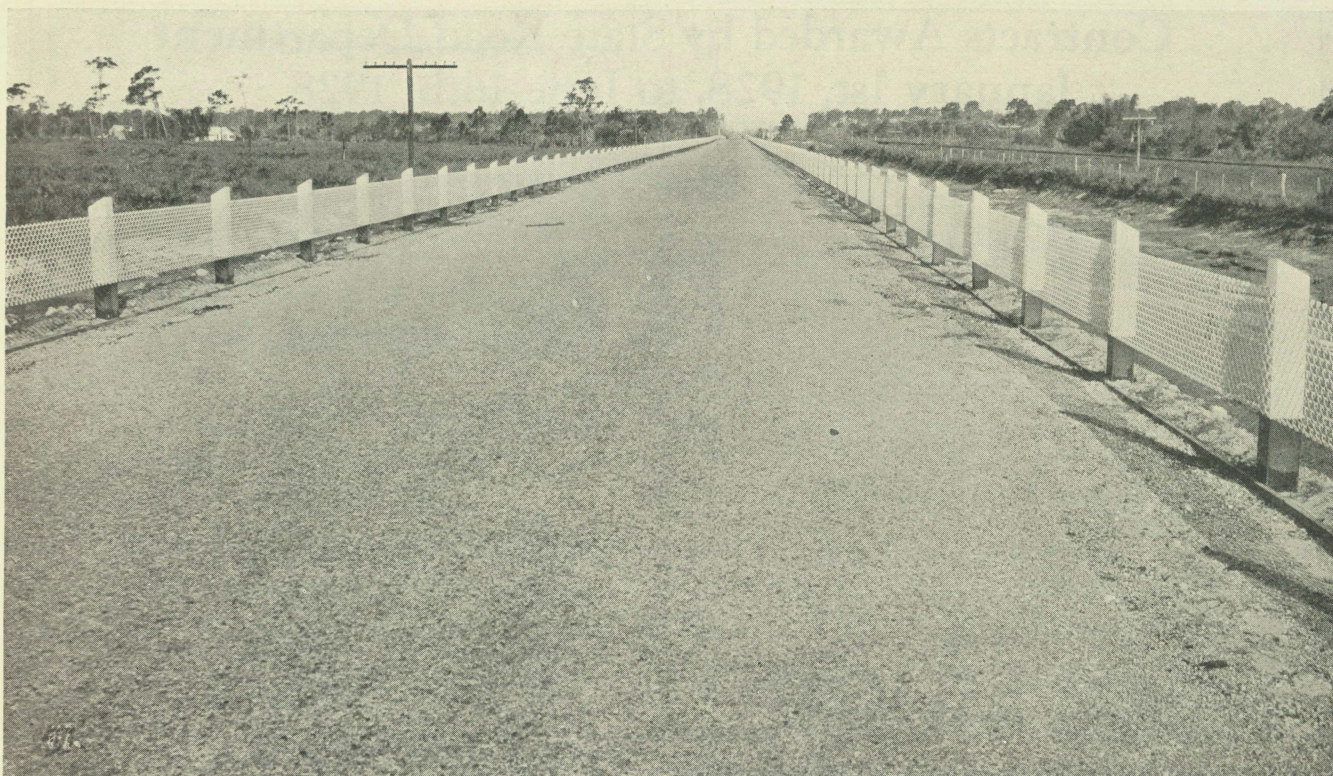
It All Depends

A gentleman went into a store one day and asked to see a good grade of suspenders. The merchant showed him a pair and said, "These are the best I have."

"Well," said the gentleman, "they won't do. They are not strong enough."

"But," continued the merchant, "they will cost you only 25 cents. Surely at that price a man wouldn't be losing much."

"Not unless he lost his pants," replied the customer, as he walked out.—Badger Highways.



Project 564-C, Road 5, Charlotte County. Surface-treated lime rock base.

Boosting the Morale

A lady, visiting a prison, mistook the warden for one of the convicts.

"I hope you will be a better man when you get out of here," she said.

"Yes, ma'am," he responded. "I'll be through with politics, at least."—American Legion.

Sticking To It

In the retrial of a case two years after the first hearing, a woman witness was again asked her age. "Thirty-five," she replied.

"If I remember correctly," said the young lawyer, "that is the same figure you gave at the first trial."

"Well," replied the witness, "I want you to understand that I'm not one to tell you one thing today and another tomorrow."—Christian Science Monitor.

Little Laughs in Court

London Loidy (explaining her black eye)—"All caused by this eternal triangle—me, me 'usband and 'is wages."

Staffordshire Woman (complaining against flirtatious husband)—"He's worse than one of those shrieks of the desert, your worship."

Sailor (in London court)—"You call her my better half, your worship, but she's more than that—I'm only a tar, but she's a tartar."

Woman (testifying againt husband)—"He's an awful liar. Why, I can't even believe what he says in his sleep."

British physicians now claim that crying is good for one's complexion, provided, of course, that one's complexion is one's complexion.—Detroit News.

"Chang Quits Peking." Ah, but what will Peking care? For Chang will soon be replaced by Cheng, Ching, Chong, or possibly, Chung.—New York Evening Post.

The Office Cynic's daily view on agriculture is that just as long as there are \$7,000,000 appropriations to fight corn-borers, there will be corn-borers.—Detroit News.

Another thing the ultimate consumer pays without realizing it is the salary of the bill collector.—San Francisco Chronicle.

Perhaps the President just wanted to see if two-thirds of Congress could ever get together on anything.—San Diego Union.

One of Rockefeller's daughters has just lost a \$7,000,000 suit. Women's clothes cost something awful.—American Lumberman (Chicago).

Our fruit growers are right up to the minute in most respects, but they still have a "maiden's blush" apple.—Council Bluffs Nonpareil.

Stop, Look, Listen

He heard the toot, but tried to scoot
And beat the choo-choo to it.
The poor galoot now twangs a loot,
Take heed that you don't do it.
—Georgia Highways.

An orator is a man who uses twin-six words to propel a four-cylinder idea.—Port Arthur News.

Contracts Awarded by State Road Department January 1st, 1928, to June 16th, 1928

Contractor—	Project No.	County—	Length Miles	Length Feet	Contract + 10 %	Type
Sutton Bros.	55-B	Alachua .....	.....	457	\$ 54,272.17	Concrete
General Const. Co.	677-D	Levy .....	.....	1,335	43,000.98	Timber
Frost Const. Co.	710-B	Hillsboro .....	.....	260	54,775.16	Concrete
Sutton Bros.	764-B	Suwannee .....	.....	113	19,043.82	Conc. Overh'd.
Duval Engr. & Contr. Co.	677-D	Levy	8.91	.....	110,370.35	R. B. S. T.
E. F. Powers Const. Co.	710-C	Hillsboro	12.69	.....	95,125.45	C. G. & G.
B. Booth	755	Polk	11.22	.....	58,518.86	C. G. & G.
Little & Lee	757	Polk	10.26	.....	63,516.17	C. G. & G.
Little & Lee	758	Polk	8.34	.....	46,380.34	C. G. & G.
Gilbert & Hadsock	732	Polk	8.94	.....	57,077.26	C. G. & G.
C. G. Kershaw Contr. Co.	736	Holmes	8.58	.....	45,097.93	C. G. & G.
C. G. Kershaw Contr. Co.	709	Holmes	9.09	.....	53,931.71	C. G. & G.
Morgan-Hill Paving Co.	61-C	Gadsden	9.77	.....	244,581.31	Concrete
Franklin Const. Co.	710-A	Hillsboro	6.18	.....	38,592.08	C. G. & G.
E. M. Chadbourne	697	Escambia .....	.14	666	3,401.25	Surface
Robert G. Lassiter & Co.	683-A	Falm Beach	8.04	.....	264,999.43	Concrete
Rutherford Const. Co.	695	Lake	3.00	.....	46,992.07	R. B. S. T.
S. G. Collins	827	Escambia	8.12	.....	50,151.29	C. G. & G.
M. C. Winterburn, Inc.	61-A	Gadsden	10.00	.....	231,578.27	Concrete
Phoenix Asphalt Paving Co.	669-X	Collier	9.40	.....	28,814.77	Surface T'd.
Everglades Const. Co.	62-C	Osceola	11.83	.....	115,303.71	C. G. & G.
A. D. Weeks	62-A	Osceola	12.62	.....	83,299.72	C. G. & G.
A. D. Weeks	62-D	Osceola	12.52	.....	66,571.01	C. G. & G.
R. C. Huffman Const. Co.	807-A	Palm Beach	10.81	.....	201,713.22	R. B. S. T.
R. C. Huffman Const. Co.	807-C	Palm Beach	6.14	.....	99,923.54	R. B. S. T.
C. A. Steed & Son, Inc.	804	Glades	18.55	.....	416,083.52	R. B. S. T.
Duval Engr. & Contr. Co.	659	Clay	7.25	.....	95,449.25	R. B. S. T.
Silas Gibson	815	Okaloosa	13.58	.....	60,680.23	C. G. & G.
W. J. Bryson Paving Co.	819	Okaloosa	4.69	.....	20,979.67	C. G. & G.
W. J. Bryson Paving Co.	823	Okaloosa	9.18	.....	34,085.34	C. G. & G.
W. J. Bryson Paving Co.	824	Okaloosa	9.81	.....	59,898.02	C. G. & G.
Perkins Const. Co.	820-B	Jefferson .....	.....	114	4,881.25	Timber
Maddox Foundry & Mach Co.	743	Bay .....	.....	120	13,774.47	Timber
Total			249.66	3,065	\$2,882,863.62	

CROSS ALONG THE ROADSIDE FOR EVERY PERSON KILLED IN AUTOMOBILE ACCIDENTS

(Continued from page 10)

jury. These two items applied to 26,000 fatalities and 725,000 non-fatal injuries, respectively, gives an approximate total of \$266,500,000. Add to this an average actual property damage of \$50 due to every accident involving either personal injury or property damage (conservatively estimated at 7,000,000), there results a total estimated loss of close to \$700,000,000 annually. Of course, this economic loss while it cannot fail to retard our national prosperity, is negligible as compared with the humanitarian aspect of the safety problem."

"LOWEST AND BEST BIDDER"

(Continued from Page Five)

ment. It is a function of administration requiring the exercise of trained executives who understand the industries and know the companies therein with which they are dealing. Not only the construction industry, but many others, look forward earnestly for the establishment of a procedure in accordance with principles that long ago demonstrated their value. The principle of qualifying government employees who may have little or no contact with Federal expenditures, is already recognized as sound, and is applied through the Civil Service Commission. It appears, therefore, that the same principle should be applicable to contractors and other business agencies who handle vast sums of government money without the administrative safeguards which surround employees.—The American City.

Completing \$5,400,000 Coastal Highway in South Carolina.

Construction of the Coastal Highway in South Carolina is nearing completion, according to Dr. Wade Stackhouse, of Dillon, S. C., chairman of the Board of Coastal Highway Commissioners. The highway covers 202 miles, extending across Dillon, Florence, Williamsburg, Jasper, Colleton and Beaufort counties and is all under contract except approximately 10 miles. Present contracts are expected to be completed during the winter. The Coastal Highway district has sold \$3,500,000 of bonds to finance construction and under the original agreement still has \$1,500,000 of bonds yet to sell. It is probable that \$750,000 of the bonds will be sold in September and the remaining \$750,000 in December. Since beginning construction, about 5 miles have been added and it is now estimated that it will require \$400,000 additional to complete the road as originally planned.—Manufacturers Record.

OUR SERVICE ON

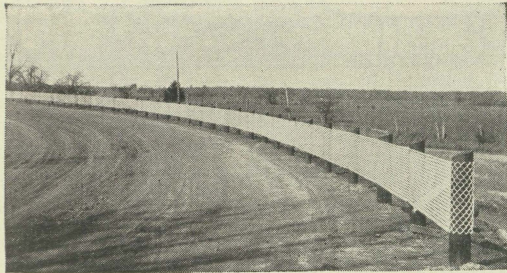
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LET US QUOTE

Southern Metal Culvert Co.

Stuart, Florida

Reinforcing Bars for Concrete

*Made in the United States
from new billet steel.*

*Intelligent, dependable service
by expert bridgemen.*

Dudley Bar Company

BIRMINGHAM, ALA.

**3,516 Lb.
CONCRETE**

The "last link" in the heavy traveled Birmingham-Montgomery highway (10.7 miles of concrete in Montgomery County laid by Walter J. Bryson Paving Co.) averaged 3,516 lbs. per sq. inch.

**Arrowhead
Sand and Gravel**

was used exclusively by these well known contractors and this project is generally regarded as one of the finest concrete roads in the entire state.

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Shepherd Building
MONTGOMERY, ALA.

Wood Preservers Since 1878

Eppinger & Russell Co.

CREOSOTED

Forest Products of all kinds

Ties, Lumber, Piles, Poles, Cross Arms
for Railroads, Bridges, Docks, Fences,
and other purposes where permanent
construction is required.

Also Manufacturers and Dealers in
Yellow Pine and Cypress

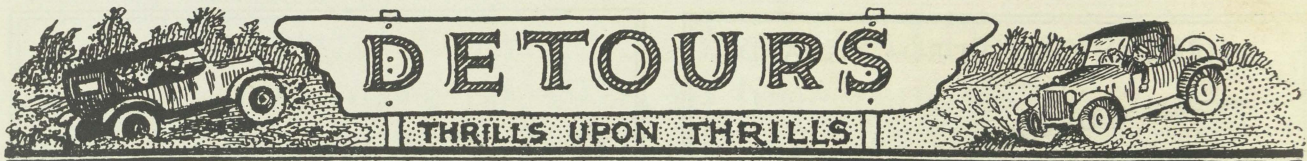
Main Office: Park-Murray Bldg., 11 Park Place,
New York

Branch Office: Jacksonville, Fla.

Plants at Jacksonville, Fla.

Long Island City, N. Y.

Information and Quotations Cheerfully Given.
Address Nearest Office.



Growing Up and Up

Sweet Sixteen—"Mother, I'm tired of looking such a kid—couldn't I have shorter frocks now?"—Bystander (London).

Meal Ticket

Jim—"That's a wild, wild girl you have, Joe."
Joe—"Well, she was wild. But I've got her so tame now she'll eat right out of my purse."—Life.

Short-sighted

A girl with cotton stockings never sees a mouse.—Chaparral.

Pass the Can-opener

Who puts the "ate" in a companionate marriage?—Life.

Giving the Low-down

Ross Wilson will sing a base solo.—Church ad in a Fort Huron (Mich.) paper.

Out Where Men Are Men

Wanted—One young tiger cat for a loving wife.—Ad in a Blackwell (Okla.) paper.

Probably Door Handles

Wonder what automobile mechanics wipe their hands on when there are no steering wheels handy.—Kansas Sour Owl.

Good News for Next Winter

Coal—When you get of me you get the best, I have good dirt and cinders for sale.—Athens (O.) paper.

Free Ride

Pedestrian—"What's the shortest way to the emergency hospital?"

Cop—"Just stand right where you are."—Wright Engine Builder.

Venus Victrix

"Ma, I'm engaged."

"Can she bake a cherry pie?"

"Yes, and she can change a tire."—Louisville Courier-Journal.

Coquettish Bossy

She was accused by one dignified housewife of having milked a cow clad in pink step-ins.—New York Evening Journal.

But at that, when a woman driver sticks out her hand you know she's thinking of doing something.—Council Bluffs Nonpareil.

It must be a good deal of a jolt to change all of a sudden from a university graduate to a mere guy looking for a job.—Indianapolis News.

Perfect Helpmate

Fuller Gloom says his wife always meets him half-way, and pay days she goes right to the office.—Albany Knickerbocker Press.

Pass the Rain-pipe

Senator Heflin is reported to have had his hat stolen while dining in a Washington restaurant. We wonder what the gentleman from Alabama will talk through now.—Judge.

Vanishing Finery

Nor do many Chicago women wear their jewels any longer. Instead they lock them up in safety vaults and go about with cheap imitations or nothing at all.—New York World.

Fifty-Fifty

Pat Murphy was taking his first flight in an airplane. The pilot was taking him over New York City. When they were up about 3,000 feet the plane suddenly went into a nosedive.

"Ha, ha!" laughed the pilot, shouting to Pat. "Fifty per cent. of the people down there thought we were falling."

"Begorra," admitted Pat, "and 50 per cent. of the people up here thought so, too."—Stratford Beacon-Herald.

Quite Obliging

Dumb—"You look sweet enough to eat."

Dora—"O. K. Where'll we eat?"—Medler.

Some Interesting "Ads"

"Bulldog for sale; will eat anything; very fond of children."

"Wanted a boy to be partly outside and partly behind the counter."

"Widow in comfortable circumstances wishes to marry two sons."

"Animal sale now on; don't go elsewhere to be cheated; come here."

"A lady wants to sell a piano, as she is going abroad in a strong iron frame."

"Wanted, an airy bedroom for a gentleman twenty-two feet long and eleven feet wide."—Ex.

Worth the Price

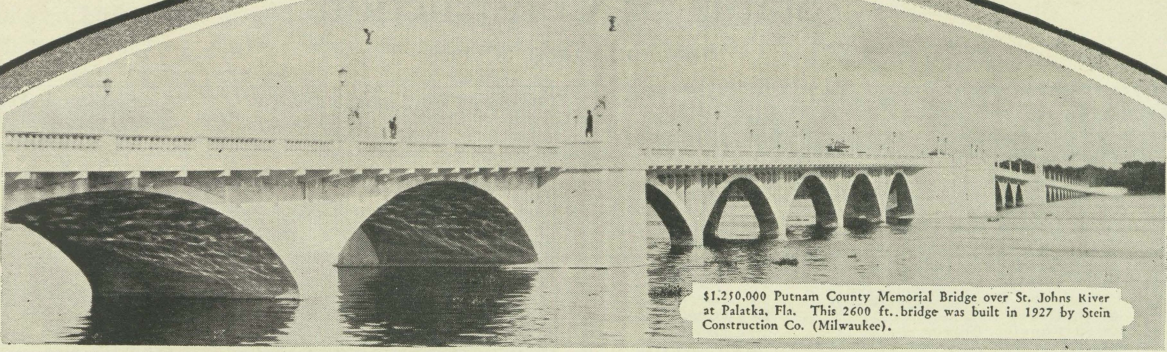
Thinking to put the young people at their ease, the conductor remarked pleasantly:

"Did you know that the tunnel we just came through cost \$12,000,000?"

"Did it?" inquired the girl. Then she added, after a pause, "Well, it was worth it."

Missing Buttons

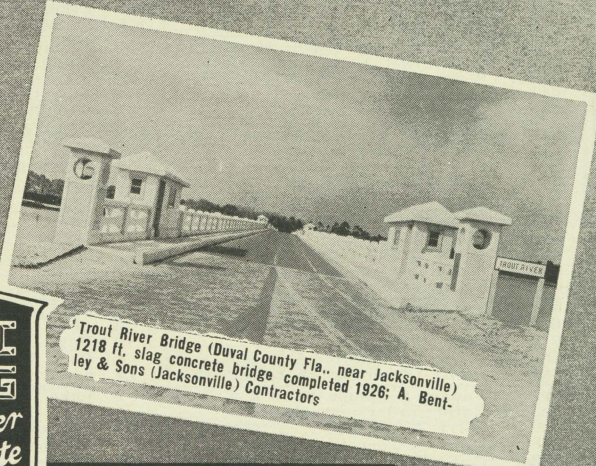
When Lindbergh sends his shirts to the laundry they steal them for souvenirs. Of course, we're not so popular; they only take parts of ours.—Judge.



\$1,250,000 Putnam County Memorial Bridge over St. Johns River at Palatka, Fla. This 2600 ft. bridge was built in 1927 by Stein Construction Co. (Milwaukee).



This magnificent slag concrete bridge on Birmingham-Montgomery Highway was constructed in 1924 by Columbus Construction Co. (Columbus, Ga.)



Trout River Bridge (Duval County Fla., near Jacksonville) 1218 ft. slag concrete bridge completed 1926; A. Bentley & Sons (Jacksonville) Contractors



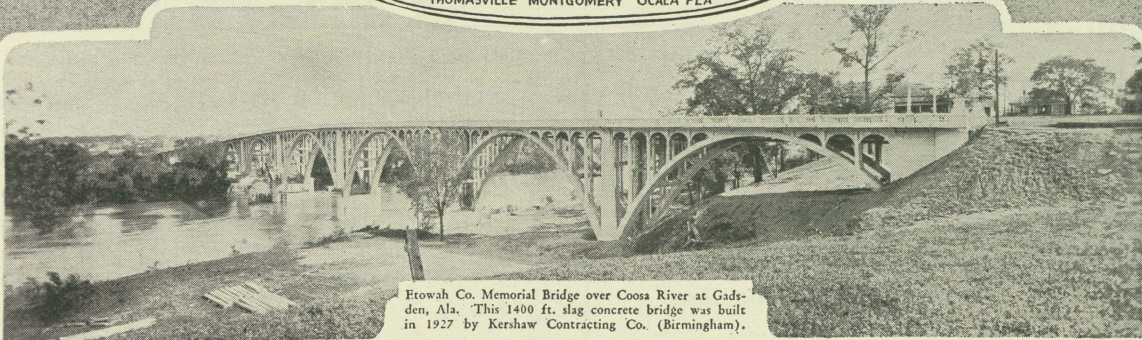
The South's Finest Bridges Are *SLAG* Concrete Bridges

Nowadays practically all highway bridges are *concrete* bridges. In recent years, and in the Southeast alone, more than 100 important bridges have been built in which scientifically prepared *basic slag* was used as the concrete aggregate.

Most bridge engineers and builders know, from experience, that **SLAG CONCRETE** is not only stronger—but much lighter—and that a substantial saving in the number of cu. yds. of concrete required for each project can be made—through the use of slag. May we give you the facts and—figures?

BIRMINGHAM SLAG CO.

Slag Headquarters for the South
ATLANTA BIRMINGHAM JACKSONVILLE
THOMASVILLE MONTGOMERY Ocala FLA



Etowah Co. Memorial Bridge over Coosa River at Gadsden, Ala. This 1400 ft. slag concrete bridge was built in 1927 by Kershaw Contracting Co. (Birmingham).

Status of Construction

THROUGH MARCH 31, 1928.

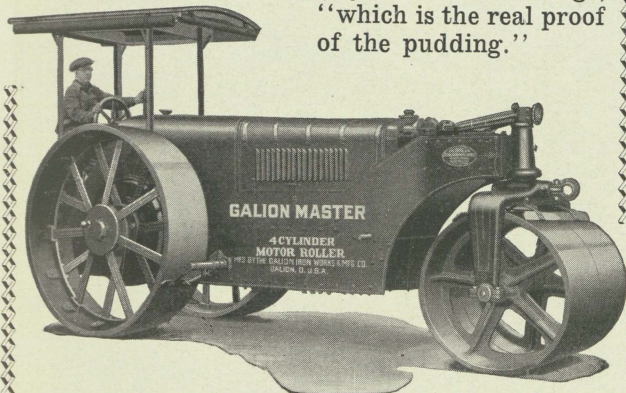
Proj. No.	Contractor.	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Per Cent Complete
50-A	L. M. Gray	14	Putnam	6.19			6.19	4.64 S.T.R.B.	96.00
50-C	N. C. Cash	14	Putnam	10.03			10.03	10.03 S.T.R.B.	100.00
52	W. J. Bryson Pav. Co.	1	Escambia	10.09	10.09	9.58		Graded	97.00
55	W. J. Bryson Pav. Co.	14	Alachua	16.77	16.77	15.93		Graded	96.00
61-A	M. C. Winterburn, Inc.	1	Gadsden	10.00				1.13 Concrete	11.30
61-C	Morgan-Hill Pav. Co.	1	Gadsden	9.77				.32 Concrete	3.30
62-A	A. D. Weeks	24	Osceola	12.52	6.26	2.50		Graded	20.00
62-C	Everglades Const. Co.	24	Osceola	11.83	1.77	.59		Graded	5.00
62-D	A. D. Weeks	24	Osceola	12.62	5.30	5.30	.38	Graded	14.00
500-B	State Convict Forces	20	Bay	12.76	0.00	0.00		Graded	0.00
518	Barnes Const. Co.	5-A	Lafayette	17.75	17.04	12.60		Graded	65.00
535	L. B. McLeod Const. Co.	5-A	Lafayette	13.20	12.80	7.52		Graded	55.00
585	State Convict Forces	1	Santa Rosa	5.19	6.00	4.67		2.50 S.T.S.C.	52.40
592	State Convict Forces	10	Franklin	8.53			4.73	0.00 S.T.R.B.	51.00
615	E. F. Powers Const. Co.	5	Sarasota	11.92	11.92	10.60		Graded	84.00
624	L. B. McLeod Const. Co.	50	Hamilton	6.23				Graded	89.03
640-A	West Const. Co.	4	Martin	9.00	5.98	5.36	4.50	0.00 S. Asph.	26.01
640-B	West Const. Co.	4	Martin	11.80			8.08	4.72 S. Asph.	49.40
644-A	State Convict Forces	10	Wakulla	8.50			0.00	0.00 S.T.R.B.	0.00
644-C	State Convict Forces	10	Wakulla	5.06	3.29	2.78		Graded	46.05
645	State Convict Forces	10	Wakulla	18.50			15.00	12.00 S.T.R.B.	85.00
651	State Convict Forces	10	Gulf	14.72			12.50	1.47 S.T.R.B.	79.80
654	S. P. Snyder & Son.	4	Broward	6.30	6.30	6.10	6.10	1.76 Bit.Mac.	61.00
659	Duval Engr. & Contr. Co.	3	Clay	7.25			3.41	0.00 S.T.R.B.	39.00
669-C	R. C. Huffman Const. Co.	27	Dade	12.00	12.00	12.00	12.00	0.00 S.T.R.B.	98.00
669-D	R. C. Huffman Const. Co.	27	Dade	12.31	12.31	11.69	11.69	0.00 S.T.R.B.	95.00
669-V	H. E. Wolfe	27	Collier	19.72	17.50	17.50	16.50	10.00 S.T.R.B.	80.00
669-XZ	H. E. Wolfe Const. Co.	27	Collier	15.88			15.88	.32 S.T.R.B.	80.00
669-Z	Alexander, Ramsey & Kerr	27	Collier	6.48	6.48	6.48		Graded	100.00
667-C	Boone & Wester	13	Levy	10.16	10.16	10.16		Graded	100.00
667-D	N. B. Burton	13	Levy	3.05	3.05	2.84		Graded	85.00
667-D	Duval Engr. & Contr. Co.	13	Levy	8.91			6.24	0.00 S.T.R.B.	54.00
678	State Convict Forces	10	Bay	8.73	0.00	0.00		Graded	0.00
683-A	Robert G. Lassiter & Co.	4	Palm Beach	9.04	6.83	1.12		.24 Concrete	4.00
685	Deen, Yarborough & Ebersbach	10	Franklin	18.46	18.46	18.00		Graded	99.00
695	Vadner & Tampa Sand & S. Co.	2	Lake	10.54	10.54	10.38		Graded	99.50
695	Rutherford Const. Co.	2	Lake	3.00			2.56	0.00 S.T.R.B.	80.00
706-B	Curry & Turner	28	Putnam	14.91	14.56	9.55		Graded	70.00
708	Hardee-Fisher Co., Inc.	11	Jefferson	7.98	7.98	6.39		Graded	84.00
709	C. G. Kershaw Constr. Co.	39	Holmes	9.09	8.63	2.27		Graded	35.00
710-A	Franklin Const. Co.	17	Hillsboro	6.18	4.94	3.58		Graded	54.20
710-C	E. F. Powers Const. Co.	17	Hillsboro	12.69	8.12	3.81		Graded	33.00
714	W. J. Bryson Pav. Co.	28	Union	10.21	10.21	9.70		Graded	97.20
715	Sellers Const. Co.	28	Union	3.70	3.66	3.33		Graded	92.30
716	Columbia Contr. Co.	28	Bradford	11.21	11.21	10.08		Graded	94.00
717	Southern Surety Co.	28	Bradford	11.02	11.02	9.70		Graded	93.00
720	Hardee-Fisher Co., Inc.	11	Jefferson	9.64	9.16	4.82		Graded	60.00
722	R. J. Carroll	48	Jefferson	8.83	8.83	3.44		Graded	50.00
723	L. B. McLeod Const. Co.	66	Leon	11.76	10.00	9.41		Graded	78.00
724	L. B. McLeod Const. Co.	66	Leon	11.10	0.00	0.00		Graded	0.00
726	State Convict Forces	19	Dixie	12.57	4.00	1.89		Graded	10.00
728	State Convict Forces	10	Leon	11.65	10.07	9.90		Graded	81.30
732	Gilbert & Hadsock	17	Polk	8.94	3.57	.45		Graded	11.00
736	C. G. Kershaw Constr. Co.	39	Holmes	8.58	6.00	1.37		Graded	23.00
740	State Convict Forces	10	Gulf	9.63	9.63	9.63		Graded	100.00
742	Little & Lee	13	Alachua	7.65	7.65	7.50		Graded	98.40
743	State Convict Forces	10	Bay	18.25	18.25	17.34		Graded	85.00
744	State Convict Forces	19	Madison	5.79	4.05	2.84		Graded	46.00
745	Convicts & Taylor Co.	19	Taylor	15.95	11.17	8.77		Graded	50.00
748	State Convict Forces	35	Madison	6.22	6.00	4.54		Graded	74.20
749	State Convict Forces	14	Gilchrist	7.81	7.42	.75		Graded	14.00
750	State Convict Forces	14	Gilchrist	12.97	3.50	0.00		Graded	4.00
755	B. Booth	17	Polk	11.22	6.84	2.80		Graded	31.00
757	Little & Lee	2	Polk	10.26	8.21	2.97		Graded	46.00
758	Little & Lee	2	Polk	8.34	7.59	4.09		Graded	49.00
763	A. E. Campbell	50	Suwannee	12.23	11.48	11.48		Graded	92.70
764	F. W. Simpson	50	Suwannee	12.00	12.00	11.52		Graded	96.86
765	F. W. Simpson	50	Suwannee	7.00	6.99	6.78		Graded	95.00
786	State Convict Forces	52	Jackson	6.76	6.76	6.76		Graded	96.56
798	State Convict Forces	13	Nassau	15.03	0.00	0.00		Graded	0.00
827	S. G. Collins		Escambia	8.12	1.54	0.00		Graded	1.50
Total Completed March 31, 1928					2542.62	2438.25	1190.29	1835.13	
Complete month of March					75.36	50.05	21.06	19.39	
Total Complete February 29, 1928					2467.26	2388.20	1169.23	1815.74	

TOTAL MILEAGE COMPLETE

	Concrete	Brick	B. C.	S. A.	B. M.	Asph. Block	S.T.R.B.	S.T.S.C.	S. C.	Marl	Total
Complete to February 29, 1928	243.97	17.13	36.46	97.02	106.06	23.20	894.43	169.24	257.04	27.58	1872.13
Complete month of March	1.77			3.27	.82		12.25	1.67			19.78
Complete to March 31, 1928	245.74	17.13	36.46	100.29	106.88	23.20	906.68	170.91	257.04	27.58	1891.91

Don't Experiment

When you buy a Galion Master you are taking no chances because Galion Masters are well tried out and proven by years of hard usage, "which is the real proof of the pudding."



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State Highway Specifications

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Florida Portland Cement Co.

Tampa, Florida

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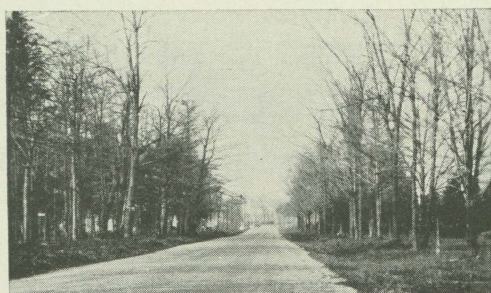
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